

REMARKS

Applicants appreciate the indication in the Official Action of March 7, 2005 that Applicants' arguments with respect to the previous rejections were deemed persuasive, and the withdrawal of those rejections. The March 7, 2005 Official Action, however, rejects all of the pending claims under 35 U.S.C. § 103 based on a newly cited reference, namely U.S. Patent No. 6,018,275 to Perrett et al. ("Perrett"), in view of U.S. Patent No. 6,449,465 to Gailus et al. ("Gailus") and, with respect to some claims, further in view of U.S. Patent No. 6,671,337 to Cordoba. For the reasons discussed below, Applicants respectfully submit that the cited references do not render the pending claims obvious and, as such, the pending rejections should be withdrawn and the application passed to issuance.

I. Independent Claims 1, 20 and 37 are Patentable Over the Combination of Perrett and Gailus

Independent Claim 1 now stands rejected under 35 U.S.C. § 103(a) as obvious over Perrett in view of Gailus. In particular, the Official Action states that Perrett discloses each and every recitation of Claim 1 except for a digital signal processor ("DSP") that generates in-phase, quadrature-phase and amplitude signals from a baseband signal, and that it would have been obvious to modify Perrett to include a DSP of Gailus that generates in-phase and quadrature-phase signals. The Official Action likewise rejects independent Claims 20 and 37 on identical grounds, as the Official Action takes the position that Claims 20 and 37 are "of similar scope" to Claim 1. Applicants respectfully submit, however, that Perrett does not disclose or suggest a modulation system that includes **both** (1) "a modulator that modulates the in-phase and quadrature-phase signals" and (2) "an amplifier having a signal input, an amplitude control input and an output" as recited in Claims 1 and 37 (or the "corresponding" method recitations of Claim 20). As such, the combination of Perrett and Gailus fail to disclose or suggest the inventions of Claims 1, 20 and 37, and the pending rejection of those claims should be withdrawn.

In particular, what the cited portions of Perrett disclose are (1) an embodiment discussed at Col. 7, lines 33-41 and Fig. 7 of Perrett in which the baseband signal is decomposed into a complex signal that is represented as a magnitude and a phase and (2) an "alternative" embodiment discussed at Col. 7, lines 42-46 of Perrett in which a conventional IQ modulator is used to modulate a complex signal in the form $a + jb$. The

embodiment disclosed in Fig. 7 of Perrett includes a modulator 39 that operates on the phase part of the baseband signal $f_{bb}(\theta)$ and a variable power amplifier that operates on the magnitude part of the baseband signal $f_{bb}(R)$. Fig. 7 of Perrett thus does not disclose "a modulator that modulates the in-phase and quadrature-phase signals" as recited in Claims 1 and 37 (or the corresponding method recitations of Claim 20), but instead discloses a modulator that modulates a phase signal $f_{bb}(\theta)$.

The "alternative" embodiment of Perrett that uses "a conventional IQ modulator" likewise fails to provide the requisite teachings, as it does not disclose "an amplifier having a signal input, an amplitude control input and an output" as recited in Claims 1 and 37 or "amplifying the controlled oscillator output at a gain that is varied in response to the amplitude signal" as recited in Claim 20. Instead, in this "alternative" embodiment the amplitude and phase modulation is generated directly by providing the full complex baseband signal to the IQ modulator, and not through the use of a variable power amplifier as in the embodiment of Fig. 7. (See Perrett at Col. 7, lines 41-46). Moreover, one of skill in the art would not be motivated to combine the two above-described embodiments of Perrett, as they **provide alternative ways of achieving the same result, namely providing an amplitude and phase modulated signal**. Thus, as Perrett fails to disclose or suggest **both** (1) "a modulator that modulates the in-phase and quadrature-phase signals" and (2) "an amplifier having a signal input, an amplitude control input and an output", the rejections of Claims 1, 20 and 37 should be withdrawn for at least this reason.

II. Independent Claims 10, 13-15, 28 and 31-33 are Patentable Over the Combination of Perrett and Gailus

Independent Claims 10 and 28 also stand rejected under 35 U.S.C. § 103 as obvious over the combination of Perrett and Gailus. In particular, the Official Action states that one of skill in the art would have been motivated to modify Perrett to include the envelope detectors included in the EER system of Frederick Raab (as discussed in Col. 2 and Fig. 1 of Gailus) to arrive at the invention of Claim 10. The Official Action further states that Claim 28 is of similar scope to Claim 10 and rejected on the same grounds. Applicants submit, however, that the rejections of Claims 10 and 28 likewise are not supportable.

In particular, Claim 10 recites that the modulation system includes "an amplitude tracking subsystem that is responsive to the quadrature modulator to produce an amplitude signal that is responsive to amplitude changes in the modulated signal and that is independent of phase changes in the modulated signal." In the transmitter of Fig. 7 of Perrett, the magnitude part of the baseband signal $f_{bb}(R)$ is fed directly to the power amplifier, and only the phase part of the baseband signal is modulated. As such, the system of Fig. 7 of Perrett clearly does not include "an amplitude tracking subsystem that is responsive to the quadrature modulator." While the Official Action discusses the system of Raab at great length, nowhere does the Official Action take the position that Raab discloses "an amplitude tracking subsystem that is responsive to [a] quadrature modulator", and Applicants respectfully submit that the system of Raab does not provide any such teaching or disclosure. Thus, the combination of Perrett and Gailus/Raab does not disclose or suggest the invention of Claims 10 and 28, and the rejection of these claims should also be withdrawn for at least this reason.

Independent Claims 13-15 all previously depended from Claim 10 (either directly or indirectly), but have been rewritten into independent form. Consequently, each of these claims are patentable for the same reasons that discussed above that Claim 10 is patentable over the cited art. Likewise, independent Claims 31-33 all previously depended from Claim 28 (either directly or indirectly), but have been rewritten into independent form. Consequently, each of these claims are patentable for the same reasons that discussed above that Claim 28 is patentable over the cited art.

III. The Dependent Claims are Also Patentable

Applicants submit that each of the remaining dependent claims is patentable for the reasons discussed above that each of the independent claims are patentable.

IV. Conclusion

Applicants submit that the present application is in condition for allowance and the same is earnestly solicited. Should the Examiner have any matters outstanding of resolution, he is encouraged to telephone the undersigned at 919-854-1400 for expeditious handling.

In re: Erik Bengtsson et al.
Serial No. 09/746,823
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Respectfully submitted,

A handwritten signature in black ink, appearing to read "D. Randal Ayers".

D. Randal Ayers
Registration No. 40,493
Attorney for Applicants

Customer Number 20792

Myers Bigel Sibley & Sajovec, P.A.
P.O. Box 37428
Raleigh, NC 27627
919-854-1400
919-854-1401 (Fax)

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on June 7, 2005.

A handwritten signature in black ink, appearing to read "Carey Gregory".

Carey Gregory
Date of Signature: June 7, 2005